

## GEOCAULON LIVIDUM IN THE MAHOOSUC RANGE, NEW HAMPSHIRE AND MAINE

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*Geocaulon lividum* (Richards) Fern. is among the more obscure components of the northern New England flora. Its distribution is the low arctic and boreal regions of Canada and Alaska, reaching its southern limit in our area in northern New England. It is the northernmost Santalaceae in North America. In the literature it is sometimes referred to as semi-parasitic; capable of both autotrophic and phagotrophic nutrition. Semi-parasitism is common in the Santalaceae and is achieved by haustorial suckers (Moss, 1926).

Prior to 1965, *Geocaulon lividum* had been collected or sighted in New England but twelve times, these stations mainly from the mountains of northern New Hampshire and Maine while one coastal station was reported from Washington County in Maine. In 1965, S. K. Harris reported six stations, five of them from the Mahoosuc Range. He comments on the difficulty in distinguishing the plant from *Vaccinium* ssp., and concludes, "A thorough search for the plant in favorable habitats may reveal that *Geocaulon lividum* is a much more common plant in northern New England than present collections indicate."

A. R. Hodgdon (1974) found the species in South Bay Bog, Pittsburg, N.H., at an elevation of about 1700 ft. He suggests that botanists have overlooked *Geocaulon lividum* at intermediate elevations in northern New England such as the Pittsburg station.

In 1976 C. S. Richards (pers. comm.) reported another coastal station from Washington County, Maine.

### OBSERVATIONS IN THE MAHOOSUCS

In 1975 I encountered the species in a study site on Mahoosuc Arm (elev. — 3777 ft.), Oxford County, Maine. After learning to distinguish it from *Vaccinium angustifolium* varieties and *V. uliginosum* var. *alpinium*, I found the plant on peaks and forests throughout the Mahoosuc Range at elevations between 2500 ft. and 3800 ft. I found 40 stations between Mt. Success, Coos County, New Hampshire, and Old Speck, Oxford County, Maine, excluding Goose Eye, which was the subject of Harris' observations. I ceased

enumerating the stations at 40, satisfied that *Geocaulon lividum* had a general distribution within the Mahoosuc Range. Like Harris (1965), I found the plant both on the "boggy summits," which Pease (1964) states as the local habitat and on moist forest sites. New boggy summit stations include Mahoosuc Arm summit area (13), Old Speck west arm (1), Mt. Carlo (2), and Mt. Success (9). Moist forest stations along the Mahoosuc Trail occur on Old Speck's southwest ridge (4), near May Cut-Off on Mahoosuc Arm (4), along the north slope of Mt. Success (5), and just south of Success summit (1).

On the summits of the Mahoosuc Range *Geocaulon lividum* occurs in all the plant associations delineated by Fahey (1976) and Marchand (1977), although it went undetected in these studies. In forests it occurs most commonly along trailsides with *Cornus canadensis*, *Maianthemum canadense*, *Clintonia borealis*, and *Coptis groenlandica* or with a slightly more ericaceous association of *Vaccinium angustifolium*, *V. myrtilloides*, and *Gaultheria hispidula* upon an extensive moss carpet often including the less common *Thuidium* spp. The forest canopy is most often fir but white birch, red spruce, and mountain ash are sometimes found.

Moss (1926) describes dwarfed individuals of *Geocaulon lividum* from Banff, Alberta. A particular underground stem bore normal shoots or abnormal only. This appears to be the case with Mahoosuc individuals as well.

#### CONCLUSIONS

*Geocaulon lividum* is not a rare plant in the Mahoosuc Range and it seems likely that this is true of northern New England as a region. Stations enumerated from the Range more than triple the recorded stations from New England. The distribution and physiological ecology of this semi-parasite are worthy of further study.

Voucher specimens are on deposit at the Hodgdon Herbarium, University of New Hampshire.

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